

MOTOROLA

SEMICONDUCTOR

TECHNICAL DATA

The RF Line

NPN Silicon

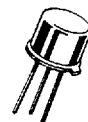
High Frequency Transistor

... specifically designed for CRT driver applications requiring high frequency and high voltage, such as high resolution color graphics video monitors.

- High Voltage — $V_{(BR)CBO} = 120 \text{ V Min}$
- High Cutoff Frequency — $f_T = 1000 \text{ MHz Min}$
- Low Output Capacitance — $C_{cb} = 2.5 \text{ pF Max @ } V_{CB} = 15 \text{ V}$
- Gold Metallization

LT1839

$f_T = 1000 \text{ MHz MIN}$
HIGH FREQUENCY
TRANSISTOR
NPN SILICON



CASE 79-04, STYLE 1
(TO-39)

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	V_{CEO}	70	Vdc
Collector-Base Voltage	V_{CBO}	120	Vdc
Emitter-Base Voltage	V_{EBO}	3	Vdc
Collector Current — Continuous	I_C	300	mA
Operating Junction Temperature	T_J	200	$^{\circ}\text{C}$
Storage Temperature Range	T_{stg}	-65 to +200	$^{\circ}\text{C}$

ELECTRICAL CHARACTERISTICS

Characteristic	Symbol	Min	Typ	Max	Unit
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OFF CHARACTERISTICS

Collector-Emitter Breakdown Voltage ($I_C = 1 \text{ mA}, I_B = 0$)	$V_{(BR)CEO}$	70	—	—	Vdc
Collector-Base Breakdown Voltage ($I_C = 0.1 \text{ mA}, I_E = 0$)	$V_{(BR)CBO}$	120	—	—	Vdc
Emitter-Base Breakdown Voltage ($I_E = 0.1 \text{ mA}, I_C = 0$)	$V_{(BR)EBO}$	3	—	—	Vdc
Collector Cutoff Current ($V_{CB} = 80 \text{ V}, I_E = 0$)	I_{CBO}	—	—	20	μA
Collector Cutoff Current ($V_{CE} = 80 \text{ V}, V_{BE} = 0$)	I_{CES}	—	—	100	μA

ON CHARACTERISTICS

DC Current Gain ($I_C = 50 \text{ mA}, V_{CE} = 5 \text{ V}$)	h_{FE}	20	—	60	—
Collector-Emitter Saturation Voltage ($I_C = 50 \text{ mA}, I_B = 5 \text{ mA}$)	$V_{CE(sat)}$	—	—	800	mV

DYNAMIC CHARACTERISTICS

Collector-Base Capacitance ($V_{CB} = 15 \text{ V}, I_E = 0, f = 1 \text{ MHz}$)	C_{cb}	—	—	2.5	pF
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FUNCTIONAL TESTS

Cutoff Frequency ($V_{CE} = 10 \text{ V}, I_C = 80 \text{ mA}, f = 250 \text{ MHz}$)	f_T	1	—	—	GHz
Insertion Gain ($V_{CE} = 10 \text{ V}, I_C = 50 \text{ mA}, f = 200 \text{ MHz}$)	$ S_{21} ^2$	—	—	—	dB

TYPICAL CHARACTERISTICS

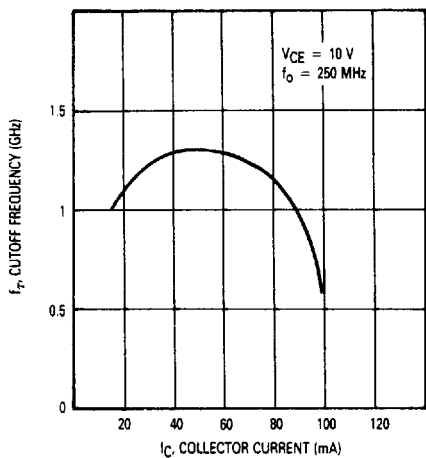


Figure 1. Gain Bandwidth Product versus Collector Current

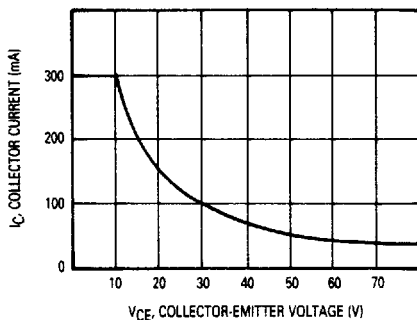


Figure 2. Safe Operating Area

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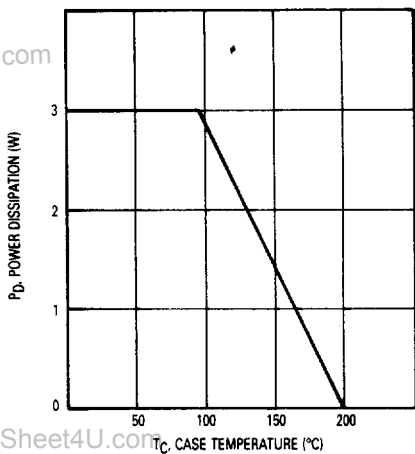


Figure 3. Power Dissipation versus Temperature

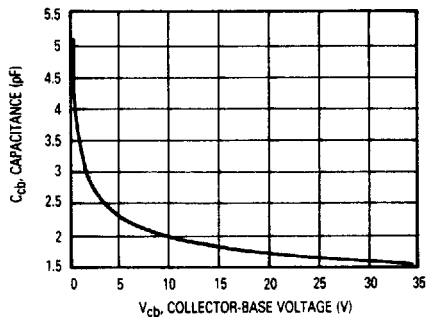


Figure 4. Junction Capacitance versus Voltage

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